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Submitted Via Email: *swqs@ecy.wa.gov*

Subject: **Comments on Human Health Water Quality Criteria and Implementation Tools**

Dear Becca:

Thank you for the opportunity to provide comments on rulemaking in Washington Administrative Code (WAC) 173-201A related to Human Health Water Quality Criteria (HH WQC) and Implementation Tools, which was issued on February 1, 2016. We appreciate the time and effort that Washington State Department of Ecology (Ecology) staff have invested in engaging stakeholders and the public on these complex issues, and in the development of this second proposal. We strongly support development of HH WQC by Washington State rather than the US Environmental Protection Agency (EPA). We also support the need for implementation tools.

As part of its outreach on these issues, Ecology has hosted an extensive series of educational and discussion programs (Ecology Policy Forums) and worked diligently to engage community members (both stakeholders and affected parties). The key principles for community involvement in risk management identified by the National Research Council (PCCRARM 2001), with the consideration of the Presidential/Congressional Commission on Risk Assessment and Risk Management (CRARM 1997), are "(1) involve the community from the beginning; (2) provide the community with the resources they need to participate effectively in the decision-making process; and (3) build an effective working relationship with the community." These processes take time and commitment, particularly for important and complex issues such as the development of HH WQC for Washington State.

EPA states that Washington State may try to provide final criteria prior to EPA's finalization of its HH WQC for Washington State (EPA 2015). However, this is an unrealistic goal given the state requirements for public review, which is a critical part of the process. EPA's Federal Register notice also stated that if EPA finalizes its rule and Washington State subsequently submits HH WQC that are approved by EPA, the previously approved, EPA-developed HH WQC for Washington State would no longer apply (in favor of the Washington State-developed HH WQC). This eventuality would be extremely inefficient for all parties involved, and would create a tremendous amount of regulatory uncertainty. The uncertainty would likely lead to inaction for both compliance and enforcement activities—and therefore no improvement in water quality during that period—as well as significant economic impacts. Washington State should work aggressively to avoid this possibility.

Ecology's 2016 proposed HH WQC are, overall, significantly more protective than current Washington State HH WQC. This letter focuses on areas of support and some areas of concern for the HH WQC, Implementation Tools, and associated documents identified below:

- *Preliminary Cost-Benefit and Least-Burdensome Alternative Analysis: Chapter 173-201A WAC, Water Quality Standards for Surface Waters of the State of Washington* (Ecology 2016b), hereafter referred to as the Cost-Benefit Analysis (CBA)
- *Draft Environmental Impact Statement- Revised: Washington State's Proposed Changes to Water Quality Standards for Surface Waters of the State of Washington – WAC 173-2-1A* (Ecology 2016a), hereafter referred to as the Environmental Impact Statement (EIS)
- *Washington State Water Quality Standards: Human Health Criteria and Implementation Tools: Overview of Key Decisions in Rule Amendment* (Ecology 2016c), hereafter referred to as the Key Decisions Overview

Our comments are provided below in descending order of priority.

1. A relative source contribution (RSC) of 1 is reasonable for a fish consumption rate of 175 g/day, but the rationale for the selection of this RSC should be more developed in the Key Decisions Overview.

   Ecology's Key Decisions Overview (Ecology 2016c) includes strong rationale for the selection of an RSC of 1. However, the document did not discuss the history of the use of the RSC or the conservative nature of reserving exposure for other pathways. This rationale would provide important context and should be included in the RSC section of the Key Decisions Overview.

   The RSC approach was originally developed to calculate maximum contaminant level (MCL) goals for safe drinking water. MCLs, unlike HH WQC, are not directly enforceable regulations. EPA's 1989 draft National Primary and Secondary Drinking Water Regulations (EPA 1989) are often cited as the source for the 80/20 RSC approach. This EPA document provides no data to support this approach for drinking water (or any other exposure routes), but instead states that the 80/20 RSC approach was used because data were inadequate. EPA received many divergent comments on the use of a 20% floor and 80% ceiling for the RSC as applied to drinking water. EPA's discussion of comments received (EPA 1991) focuses on whether the RSC properly accounted for volatilization and dermal exposure, indicating that the critical review of the RSC (in general) and the 80/20 RSC approach (more specifically) did not focus on issues relevant to HH WQC.

   Consumption of surface water in the proposed freshwater HH WQC is assumed to be 2.4 L/day (Ecology 2016c); the 90th percentile of drinking water consumption is 2.35 L/day (EPA 2011). Presumably, if a person is drinking surface water (as is assumed in the freshwater HH WQC), he or she is not also being exposed to other drinking water (as covered by the MCLs for drinking water), so "reserving" exposure for the drinking water pathway (with an 80/20 RSC approach) is unnecessary.

   In addition, because HH WQC are for organism-only (marine) or organism-plus-water (freshwater) pathways, they address a major exposure pathway not covered by drinking water regulations: fish and shellfish consumption. For many of the bioaccumulative chemicals of greatest concern (e.g., mercury, polychlorinated biphenyls [PCBs]), fish and shellfish consumption overwhelmingly dominates exposure for populations that consume high quantities of fish (e.g., 175 g/day, or about five 227-g meals of fish and/or shellfish every week for 70 years). Marine and anadromous fish and shellfish make up more than half of the total consumption reported in the studies that Ecology considered (Ecology 2013a) in selecting a fish consumption rate (FCR) for HH WQC. Hence, the marine/anadromous portion alone is at least 10-fold higher than the assumed consumption rate (i.e. 6.5 g/day of freshwater and estuarine fish and shellfish) used for EPA's national HH ambient water quality criteria (AWQC) when the 80/20 RSC approach was initially proposed by EPA for inclusion in HH WQC.

2. The selected PCB criteria are reasonable for this ubiquitous legacy chemical, but additional rationale should be presented in the Key Decisions Overview.

   The section entitled Challenging Chemicals: PCBs in the Key Decisions Overview (Ecology 2016c) should discuss the preponderance of PCB-listed waterways, the Governor's directive (Office of the Governor 2014) as it pertains to unregulated sources of chemicals, and PCB source identification work on the Spokane River.

   The Key Decisions Overview (Ecology 2016c) discusses environmental fate in general, with additional information on sources compared in the 2015 Key Decision Overview (Ecology 2015), but does not discuss specific water and fish concentration data from Washington State. Many, if not most, Washington State water bodies could qualify as impaired based on the current PCB criteria and listing policy. Information showing that 70% of all freshwater fish samples state-wide exceed the "fish tissue equivalent concentration-listing trigger "were presented in the Ecology Policy Forums (Ecology 2013b). Ecology completed its state water quality assessment and 303(d) list (which would provide the most recent PCB 303(d) listings) and submitted it to EPA on September 28, 2015. Ecology should update its discussion on PCBs in Washington State surface waters in the Key Decisions Overview (Ecology 2016c) with information from that submittal package.

   Per Governor Inslee's directive (Office of the Governor 2014), "While we are increasing levels of protection on discharges from permitted facilities, the fact remains that facilities are often not the sources of the chemicals we are most concerned about. Focusing only on these facilities will have limited benefit in reducing toxics regulated under this rule and will not address the larger universe of unregulated contaminants." For example, Ecology's source assessment of the Spokane River (Ecology 2011) indicates that only 20% of the PCB loading was due to municipal and industrial dischargers. Thus, further reduction of PCB HH WQC would do little to reduce concentrations of PCBs in Washington State fish.

3. The selected arsenic criteria represent a reasonable approach for this abundant, naturally occurring element; some additional support should be included in the EIS and inconsistent language corrected.

   As discussed in the Key Decisions Overview (Ecology 2016c), the selection of the MCL for arsenic in drinking water as the HH WQC for arsenic is reasonable for this naturally abundant element, and is consistent with criteria in many other states. The EIS (Ecology 2016a) states on page 25 that surface water samples would infrequently exceed Ecology's 2016 MCL based on proposed HH WQC for arsenic, and would frequently exceed Washington State's current National Toxics Rule (NTR)-based criteria. This section should also state that EPA's proposed 2015 HH WQC for arsenic for Washington State would almost always be exceeded, as should the "usability" table in the EIS (Ecology 2016a).

4. Language about the use of all known and available reasonable treatment (AKART) from b) Human health protection in WAC 173-201A-240 Toxic substances should be removed.

   The sentence "Dischargers have the obligation to reduce toxics in discharges through the use of AKART" should be removed. This removal would be consistent with language in a) Aquatic life protection. The use of AKART is discussed elsewhere in the rule as it pertains to meeting WQC.

5. A more robust rationale for the selected FCR is needed; this rationale should be added to the Key Decisions Overview, and the inaccurate description of the selected rate as an "average" value should be corrected.

   Ecology added more discussion of the datasets used to develop the FCR, and the populations and percentile(s) of the populations that the FCR is intended to represent, in the Key Decisions Overview (Ecology 2016c) than were included in the 2015 draft Key Decisions Overview (Ecology 2015c). However the description of 175 g/day as an average rate is inaccurate. This language should be

corrected, and a more robust and defensible rationale based on the extensive efforts by Ecology to develop an FCR for Washington State should be provided.

Permittees will have to meet the requirement of the new HH WQC as soon as the criteria go into effect. Thus, any small change in the criteria could mean the difference between compliance and non-compliance, trigger the need for very expensive treatments options (if such options are available), and/or impact an entity's ability to open a new business. The selected FCR is stated to be representative of the "average" consumption of three high-consuming populations used in the Key Decisions Overview (Ecology 2016c) (see pages 4, 18, 19, 23, 54). However, the average consumption by these groups is 127 g/day; the 175 g/day FCR proposed is 38% higher than the stated average value. The differences in these numbers may have big implications for some permittees.

6. Ecology's use of bioconcentration factors (BCFs) over bioaccumulation factors (BAFs) is primarily based on the assumptions used to develop and apply BCFs, and is reasonable. Further consideration of EPA's recently developed BAFs is not needed.

   Based on the rationale for BCF selection provided by Ecology (Ecology 2016c) and the recent history of BAF development by EPA, BCFs should be used in Washington State HH WQC. Ecology provides a thorough discussion supporting the use of the BCFs over BAFs in the proposed rule (Ecology 2016c). Support for the use of BCFs includes the following facts: per EPA guidance, BCFs are acceptable for use in HH WQC development; they are more closely related to water quality than are BAFs; they require fewer assumptions based on data non-specific to Washington State than do BAFs; and they require fewer inputs than do BAFs. None of Ecology's reasons for using BCFs relate to the quality of the BAF calculations. However, the Key Decisions Overview states that Ecology will review EPA's supporting material on BAFs (Ecology 2016c), which was posted on EPA's website in early 2015.

   Draft BAFs were made available as part of EPA's 2014 draft HH AWQC. Since then, the national HH AWQC have been finalized with revised BAFs. EPA received numerous comments related to how the BAFs were calculated (EPA 2015a). Between the draft 2014 (EPA 2014) and final 2015 HH AWQC (EPA 2015b), the BAFs for all 94 chemicals were changed. BAFs for Trophic Level 4 (which is applied for all fish consumption in EPA's proposed HH WQC for Washington State) were increased by up to 92% or decreased by as much as 5,242%. The majority of Trophic Level 4 BAFs changed by at least 50% between 2014 and 2015. This instability indicates high uncertainty in these BAFs and how they are derived.

7. Provisions for the option of state-wide variances should be added to Section 2, Types of Variances, under WAC 173-201A-420 Variance.

   The approval and effective dates of the Implementation Tools are not linked. Thus, HH WQC could be approved even though all of the Implementation Tools may not yet be available. Alternatively, if the HH WQC are not approved, the proposed Implementation Tools may not be adequate. For example, if EPA promulgates HH WQC for Washington State, there may be an urgent need for state-wide variances for PCBs. State-wide variances should be added to Section 2, Types of Variances, under WAC 173-201A-420 Variance.

8. The CBA understates the costs and challenges of the proposed rule and the adoption of new, more sensitive analytical methods. The EIS should better represent the importance of analytical sensitivity relative to HH WQC as well.

   The CBA assumes that dischargers out of compliance under baseline conditions will face the same compliance costs (regardless of reduced HH WQC), understates the influence of improved analytical methods and increased listings, and states that no action will be needed in several cases without rationale.

The CBA assumes that the only dischargers with "yes" results from the reasonable potential analysis (RPA) that previously received "no" results will bear additional costs. This is a misrepresentation, as coming into compliance with HH WQC that are 20 times lower (for some chemicals) will cost more. Costs will become greater as analytical methods improve. This is supported by the discussion in Section 6.6, wherein "reduced costs of complying with less stringent criteria" are identified as a (cost saving) benefit.

Chapters 5 and 7 of the CBA (Ecology 2016b) understate the cost of the proposed HH WQC. In Chapter 5, Ecology notes all new 303(d) listings are expected on waterbodies with no dischargers. This is curious, as the 2015 CBA (Ecology 2016a) identifies 55 expected new listings for waterbody segments, 5 of which have dischargers. The 2016 CBA identifies 306 expected new listings for waterbody segments with no dischargers on any of them. Is there no overlap between these lists, or have the discharging entities all ceased to operate? The possibility of waterbody listings will discourage potential development on many Washington State waterways, a fact that should be recognized in Chapter 5.

The process of total maximum daily load (TMDL) development is slow, and there will likely be many more 303(d)-listed waterbodies than waterbodies with TMDLs for several decades. However, Ecology's discussion of costs in Chapter 7 focuses on the cost of more sensitive analytical methods (driven in part by lower criteria) associated with TMDLs. More sensitive analytical methods will mean more listings (and more TMDLs with more stringent requirements). Again, Chapter 7 does not discuss the loss of development (i.e., new or expanding dischargers) on listed waterbodies or water bodies with TMDLs. New development may be forced to locate elsewhere, and dischargers needing to expand their facilities may choose to relocate. These costs should be discussed in Chapters 5 and 7, and in the summary and conclusions in Chapter 8.

In the CBA, several "no cost" scenarios are identified wherein the discharger is unlikely to need to take further action; for example, "it is unlikely further treatment is necessary" even though the facilities are out of compliance with HH WQC (see page 37)(Ecology 2016b). In addition, facilities for which a limited amount of data indicate a potential lack of compliance (with proposed HH WQC) are assumed to bear no additional costs. As discussed previously, reducing chemicals in discharge to comply with HH WQC that are 20 times lower (for some chemicals) will be more expensive than compliance under baseline.

The tables including HH WQC and analytical sensitivities in Appendix B of the EIS (Ecology 2016a) are helpful. They would be much more useful, however, if criteria below approved analytical method sensitivity were listed in bold type. This would help readers more easily understand how current and proposed HH WQC compare to analytical methods, and help frame many of the discussions in the CBA (Ecology 2016b).

9. Allowance for "as soon as possible" in compliance schedules and variances is an improvement on these Implementation Tools; however, the limited utility of variances should be recognized in the CBA.

   The potential extension of compliance schedules to be longer than 10 years (without a standardized time limit) is a positive amendment, as are variances specified to be concluded "as soon as possible," rather than being limited to 10 years as in EPA's 2013 Water Quality Standards Regulatory Clarifications (EPA 2013). The variance usability table in the EIS (Ecology 2016a) correctly classifies the usability of variances as low because of the uncertainty regarding EPA's approval and the limited duration. The low likelihood of the use of variances should be discussed in Section 6.3.3 of the CBA (Ecology 2016b), as this is a "benefit" that is unlikely to be realized by most dischargers.

10. There are no Implementation Tools available to new or expanding dischargers; this should be clarified in the Key Decisions Overview and identified in the CBA.

    As has been clear for some time, compliance schedules and variances will not be available to new or expanding dischargers. Because this is not a change from the baseline, it is not discussed in the CBA other than to state that new dischargers are expected to behave similarly to existing dischargers (Ecology 2016b). The CBA should recognize that a discharger facing criteria that may be 20 times lower and with no access to compliance schedules and variances may face additional costs and obstacles to operation, and therefore behave differently than an existing discharger (e.g. they may choose not to expand or not to operate in Washington State). This is mentioned briefly at the end of the section on Compliances in the Key Decisions Overview, but not at all in the section on Variances (Ecology 2016c). This is an important issue that needs to be clearly identified for all readers, even if no solution is currently endorsed by Ecology. Thus, a new section that calls out the issue of new and expanding dischargers being unable to use variances or compliance schedules should be added to the Key Decisions Overview.

Thank you for your consideration of these comments.

American Exploration & Mining Association is a Spokane, WA based 121-year old, 2,100 member national association representing the minerals industry with members residing in 42 U.S. states (including Washington, six Canadian provinces or territories, and 10 other countries). AEMA is the recognized national voice for exploration, the junior mining sector, and maintaining access to public lands, and represents the entire mining life cycle, from exploration to reclamation and closure. Our broad-based membership includes many small miners and exploration geologists as well as junior and large mining companies, engineering, equipment manufacturing, technical services, and sales of equipment and supplies. More than 80% of our members are small businesses or work for small businesses. Most of our members are individual citizens.

Respectfully submitted,

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Government Affairs

A. References

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